

Orion StarBlast 4.5" Telescope

INSTRUCTION MANUAL



507-328-2309



www.rochesterskies.org

WARNING: *Never look directly at the Sun through any telescope or its finder scope — even for an instant — as permanent eye damage could result. Do not point the telescope at the Sun, as parts will melt! Children should use this telescope only with adult supervision.*

This telescope was donated to the Rochester Public Library by the Rochester Astronomy Club which is also providing the library with ongoing support in education and maintenance.

We hope you enjoy using the telescope.

The RAC is a 501(c)(3) non-profit educational organization, promoting public awareness of astronomy. We hold public sky viewing events, presentations and discussions, all free of charge.

Go to <http://rochesterskies.org> for a calendar of events, newsletters, links to online resources, members forum and information about monthly club meetings, star parties and public outreach events.

You can contact the club about this telescope by emailing us at librarytelescope@rochesterskies.org.

Helpful Hints

You will use the telescope more easily if you practice with it in the daytime so that you are familiar with its parts and how it operates. Reflector telescopes like the StarBlast show an upside down view as shown below.



naked eye view



view through StarBlast

If you would like to find out if any Rochester Astronomy Club members are going to get together to go observing, go to <http://rochesterskies.org/forums/> and look at the thread “Observing Tonight?” and go to the last page.

You will see fainter objects when your eyes are dark adapted, which typically takes about 20 minutes. Exposure to white light will ruin your dark adaptation in a few seconds! Use the red headlamp in the storage bag on the telescope when looking at printed material or charts to preserve your night vision.

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We would like to thank the New Hampshire Astronomical Society which came up with the adaptations to make the StarBlast telescope suitable for use as a library loaner scope and has placed many of them in libraries across New Hampshire.

Care and Maintenance

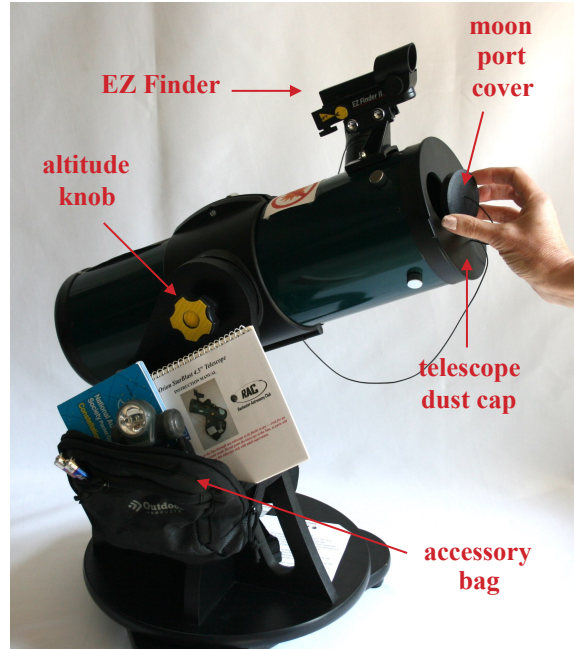
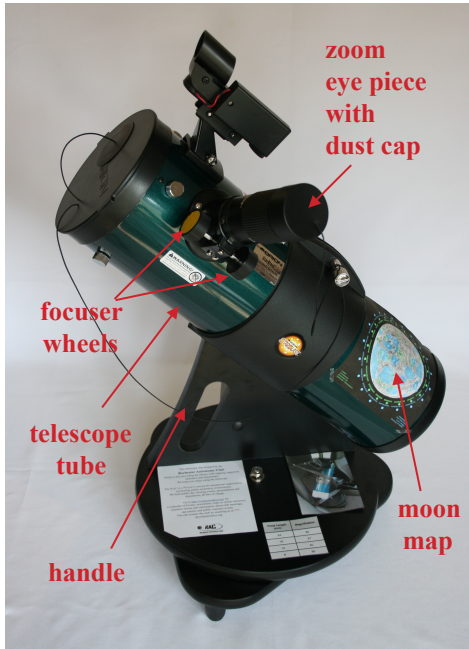
You will have the best experience with the telescope if you only turn the knobs marked with yellow. Do not turn or adjust any other knobs or screws.

Do not attempt to clean the eyepiece lense and mirrors. The librarians looked at them when the telescope was brought back by the last library patron and cleaned them if necessary.

The best way to care for the telescope is to treat it like a child:

- Use a seat belt to secure it when transporting in your vehicle.
- Never grab it by the “throat” (the eyepiece or focuser); always hold it by the handle and the base.
- Don’t poke your fingers in the “eyes” (the eyepiece or anything glass or mirrored).
- Don’t even clean the “eyes”.
- Don’t try to be a doctor. If something doesn’t seem right, take the telescope back to the library or contact us at librarytelescope@rochesterskies.org. We’re happy to help you!

Telescope Parts



How to use the StarBlast Telescope

- Sit the telescope on a surface such as a picnic table or sturdy chair (may need to kneel).
- Remove the dust caps from the end of the telescope tube and the zoom eyepiece.
- If viewing the moon, push out the moon port in the tube dust cover and then put the dust cover back on the end of the tube.
- Turn the zoom eyepiece to 24. (See next two pages re: eyepiece & EZ Finder.)
- Turn on the EZ finder. Look through it and turn the scope until the red dot in the round window seems to touch the object in the sky that you want to look at. The altitude clamp should be loose enough so the scope can be moved up or down but doesn't drop on its own.
- Turn the focuser wheel until the object is sharply focused.
- Try turning the zoom eyepiece to a smaller number to increase the magnification of the object - you may need to adjust the focus as you change the magnification.

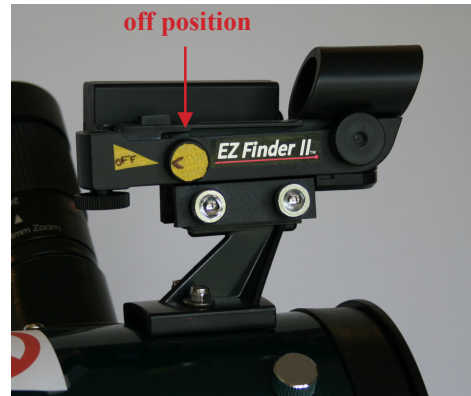
If dew settles on the eyepiece, do not try to wipe it off since you are likely to damage the special coatings on it. Instead, wrap your hands around it without touching the glass for a few minutes and that may warm it up enough to clear the dew.

When you are done observing for the night -

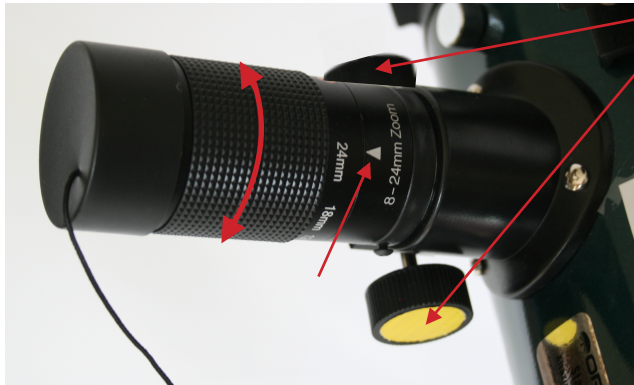
- Turn off the EZ Finder.
- Put the dust caps back on the end of eyepiece and telescope tube (and moon port).
- Replace items removed from the accessory bag. (Constellations book, manual, headlamp)

Detail of EZ Finder

- The finder is off when the “<” shape on the yellow wheel is pointed toward the yellow triangle labeled “OFF” as in the photo to the right.
- Turn the yellow wheel clockwise to turn it on. The intensity of the dot is controlled by how much you turn this wheel. Use the dimmest setting that allows you to see the dot.



- When the finder is turned on, put your face close to the telescope tube over the moon map and look through the finder with both eyes open.
- You should see a small red dot as shown in the picture to the left. If you don't see the dot, adjust the position of your head, moving slightly side to side or up and down. You need to be looking at it fairly straight on.



Detail of Focuser

- Turn either of the two wheels on the focuser (centers are yellow).
- Each zoom setting of the eyepiece requires a slightly different focus.
- Each person may need a different focus setting.
- If you wear glasses, try using them when you first look into the eyepiece, but you may find that you don't need to use them.

Detail of Zoom Eyepiece

- The zoom eyepiece has a range of focal lengths from 8 to 24 mm.
- The white triangle indicates the setting.
- When starting to find an object, begin with the eyepiece set at 24. Twist the eyepiece to change the magnification.

When the eyepiece is set on a larger number, you will see a larger area of the sky at a lower magnification. Likewise, if it is set on a lower number, you are seeing a smaller area of the sky at a higher magnification. Be aware that at higher magnifications, objects will drift out of view faster due to the rotation of the earth.

What to Observe

Go to the Library Telescope tab at rochesterskies.org for links to resources to help you find these objects. The *Constellations* book in the pack attached to the telescope can help you identify the constellations in which the objects are located.

The Moon

The moon is an easy and interesting object to observe. There is a simple moon map on the telescope tube. For the best views, observe when it is well above the horizon. The best time to observe is when it is in a partial phase, not full. The best place to observe is along the “line” between the dark and sunlit portions of the moon’s disk, called the terminator.

The Planets

The planets are moving in their orbits all the time as is the earth, so their positions in the sky are slowly changing. You will need to refer to a current sky chart to find them.

Stars

A telescope can help you see color differences in stars as well as multiple stars. Mizar, the middle star in the handle of the Big Dipper, is a double star. Albireo in the constellation Cygnus is a pretty double star, each a slightly different color. Defocusing slightly can help the color become more apparent.

Deep Sky Objects

If the sky is relatively free of light pollution, you may be able to see galaxies and star clusters.

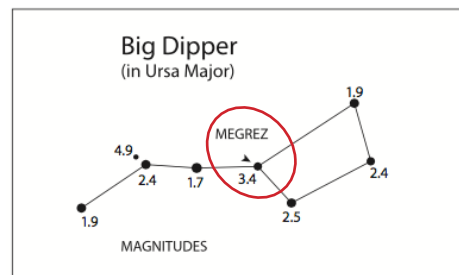
Atmospheric Conditions

Seeing - steadiness of the atmosphere

- judged by amount of star twinkling
- best overhead, worst at the horizon
- in good seeing, star twinkling is minimal and images appear steady in the eyepiece.

Transparency - clarity of atmosphere

- judged by the faintest objects visible naked eye
- bad transparency caused by moisture, smoke and dust in the atmosphere
- bad transparency scatters light making objects look dimmer



Transparency is good if Megrez is visible.

If seeing is bad but transparency is good = better views of faint objects like galaxies.

If transparency is bad but seeing is good = better views of bright objects like planets.

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